Title (en)

Method for fabricating refractory metal carbides

Title (de)

Verfahren zur Herstellung der Karbide von feuerfesten Metallen

Title (fr)

Procédés de fabrication des carbures de métaux réfractaires

Publication

EP 2687365 A2 20140122 (EN)

Application

EP 13188147 A 20080902

Priority

- US 1709807 P 20071227
- US 19197508 A 20080814
- EP 08867229 A 20080902
- US 2008075049 W 20080902

Abstract (en)

Methods for making refractory metal and refractory metal carbide nanoparticle mixtures are provided. The nanoparticle mixtures can be painted onto a surface to be coated and heated at low temperatures to form a gas-tight coating. The low temperature formation of refractory metal and refractory metal carbide coatings allows these coatings to be provided on surfaces that would otherwise be uncoatable or very difficult to coat, whether because they are carbon-based materials (e.g., graphite, carbon/carbon composites) or temperature sensitive materials (e.g., materials that would melt, oxidize, or otherwise not withstand temperatures above 800 °C), or because the high aspect ratio of the surface would prevent other coating methods from being effective (e.g., the inner surfaces of tubes and nozzles). The nanoparticle mixtures can also be disposed in a mold and sintered to form fully dense components.

IPC 8 full level

B32B 9/00 (2006.01); **B22F 1/0545** (2022.01); **B22F 3/10** (2006.01); **B22F 7/04** (2006.01); **B22F 9/00** (2006.01); **C04B 35/56** (2006.01); **C22C 29/06** (2006.01)

CPC (source: EP US)

B05D 3/0254 (2013.01 - US); **B22F 1/0545** (2022.01 - EP US); **B22F 3/1021** (2013.01 - EP US); **B22F 7/04** (2013.01 - EP US); **B22F 9/24** (2013.01 - EP US); **B29C 67/04** (2013.01 - US); **B82Y 30/00** (2013.01 - EP US); **C01B 32/90** (2017.07 - EP US); **C01B 32/914** (2017.07 - EP US); **C04B 35/56** (2013.01 - EP US); **C04B 35/5607** (2013.01 - EP US); **C04B 35/5611** (2013.01 - EP US); **C04B 35/5622** (2013.01 - EP US); **C04B 35/5626** (2013.01 - EP US); **C04B 35/573** (2013.01 - EP US); **C04B 35/575** (2013.01 - EP US); **C04B 35/632** (2013.01 - EP US); **C04B 35/645** (2013.01 - EP US); **C04B 41/009** (2013.01 - EP US); **C04B 41/5057** (2013.01 - EP US); **C04B 41/5061** (2013.01 - EP US); **C04B 41/5133** (2013.01 - EP US); **C04B 41/87** (2013.01 - EP US); **C04B 41/88** (2013.01 - EP US); **C23C 24/08** (2013.01 - EP US); **C23C 26/00** (2013.01 - EP US); B22F 3/105 (2013.01 - EP US); B22F 2998/00 (2013.01 - EP US); C04B 2235/5454 (2013.01 - EP US); C04B 2235/666 (2013.01 - EP US)

Cited by

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Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA MK RS

DOCDB simple family (publication)

WO 2009085342 A1 20090709; EP 2225101 A1 20100908; EP 2225101 A4 20110511; EP 2225101 B1 20141126; EP 2687365 A2 20140122; EP 2687365 A3 20140813; EP 2687365 B1 20190220; US 2013251900 A1 20130926; US 2014239534 A1 20140828; US 8753720 B2 20140617; US 9469543 B2 20161018

DOCDB simple family (application)

US 2008075049 W 20080902; EP 08867229 A 20080902; EP 13188147 A 20080902; US 201313891597 A 20130510; US 201414269019 A 20140502